

Model Numbers

Model Type	Model Number	Channel Port ITU Center Wavelength (nm) Tx/Rx	Expansion Port
2-Channel MUX/DEMUX♦	8870-0	1471/1491, 1511/1531	No
	8871-0	1491/1471, 1531/1511	No
	8872-0	1551/1571, 1591/1611	No
	8873-0	1571/1551, 1611/1591	No
4-Channel MUX/DEMUX♦	8874-0	1271/1291, 1311/1331, 1351/1371, 1431/1451	No
	8875-0	1291/1271, 1331/1311, 1371/1351, 1451/1431	No
	8874-1	1271/1291, 1311/1331, 1351/1371, 1431/1451	Yes ¹
	8875-1	1291/1271, 1331/1311, 1371/1351, 1451/1431	Yes ¹
	8876-0	1471/1491, 1511/1531, 1551/1571, 1591/1611	No
	8877-0	1491/1471, 1531/1511, 1571/1551, 1611/1591	No
	8876-1	1471/1491, 1511/1531, 1551/1571, 1591/1611	Yes ²
	8877-1	1491/1471, 1531/1511, 1571/1551, 1611/1591	Yes ²
♦Single-fiber CWDM/X models must be used in pairs. The Tx wavelengths on one end has to match the Rx wavelengths on the other.			
¹ EXP port supports 1471nm to 1611nm. Use with 8870-0, 8871-0, 8872-0, 8873-0, 8876-0 or 8877-0.			
² EXP port supports 1271nm to 1451nm. Use with 8874-0 or 8875-0.			

Warranty

WARNING

The operating description in this Instruction Manual is for use by qualified personnel only. To avoid electrical shock, do not perform any servicing of this unit other than that contained in the operating instructions, unless you are qualified and certified to do so by Omnitron Systems Technology.

Warranty

This product is warranted to the original purchaser against defects in material and workmanship for a period of ONE YEAR from the date of shipment. You may register your product on the Internet at <http://www.omnitron-systems.com>. During the warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective.

For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will pay the shipping charge to return the product to Buyer's designated US address using Omnitron's standard shipping method.

Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied equipment, Buyer-supplied interfacing, unauthorized modifications or tampering with equipment (including removal of equipment cover by personnel not specifically authorized and certified by Omnitron), or misuse, or operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance.

No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

Exclusive Remedies

The remedies provided herein are the Buyer's sole and exclusive remedies. Omnitron shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any legal theory.

iConverter CWDM/X

2 and 4 Channel Single-Fiber MUX/DEMUX USER MANUAL

Product Overview



The *iConverter* Single-Fiber Course Wave Division MUX/DEMUX CWDM/X modules utilize a single-fiber Common Port that aggregates two different wavelengths from each dual fiber Channel Port. Each fiber strand on the Channel Port supports a different wavelength, one wavelength for transmit (Tx) and a different wavelength for receive (Rx).

Single-Fiber CWDM/X modules are always used in pairs (example: model 8870-0 used with 8871-0). The transmit wavelength of the Channel Port at one end must match the receive wavelength of the same Channel Port at the other end, and the receive wavelength of the Channel Port at one end must match the transmit wavelength of the same Channel Port at the other end.

2-Channel CWDM/X modules support four wavelengths; two transmit and two receive. 4-Channel Single-Fiber CWDM/X modules support eight wavelengths and feature an optional Expansion Port (EXP) that can be used to cascade two MUX/DEMUX modules, doubling the channel capacity from 4-Channels to 8-Channels on the single-fiber link.

Port Definitions

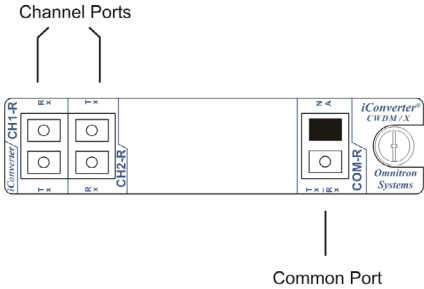


Figure 1: Port Locations for 2-Channel CWDM/X Module

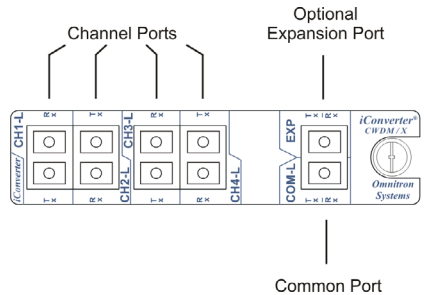


Figure 2: Port Locations for 4-Channel CWDM/X Module

Channel Port

The Channel Ports transmit and receive signals on specific CWDM wavelengths. Each Channel Port supports a different transmit and receive wavelength based on the CWDM/X model. The Channel Ports are multiplexed onto and demultiplexed from the Common Port.

Figure 3 shows a pair of 2-Channel CWDM/X modules connected via a single-mode, single-fiber cable. A total of four wavelengths are supported on each 2-Channel CWDM/X module.

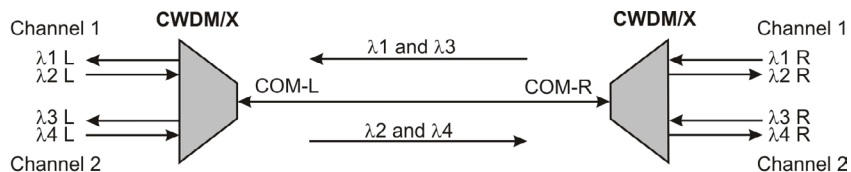


Figure 3: A Pair of 2-Channel MUX/DEMUX Modules

When connecting external dual fiber transceivers to the Channel Port, select an optical transceiver that matches the receive wavelength of the specific Channel Port. Since the Channel Port uses two different wavelengths over dual fiber, one wavelength for transmit (Tx) and a different wavelength for receive (Rx), the receiver of the external dual fiber transceiver must have the capability to detect the transmit wavelength of the Channel Port. Typically, the receiver of a dual fiber transceiver has an operating center wavelength of 1260nm to 1610nm. Verify the external transceiver's optical parameters before using.

Common Port

The Common Port transmits and receives the aggregated wavelengths connected to the Channel and Expansion Ports over a single-fiber common link. CWDM/X modules are always used in pairs. When connecting two CWDM/X modules, the COM-L port is connected to the COM-R port on the matching pair.

Expansion Port

The optional Expansion Port (EXP) enables the cascading of two CWDM/X modules as shown in Figure 4. The Expansion Port supports the cascading of two 4-Channel modules or the cascading of a 4-Channel module with a 2-Channel module by connecting to the Common Port of another CWDM/X module. When cascading, make sure the wavelengths of the Channel Ports on each module are unique and not duplicated.

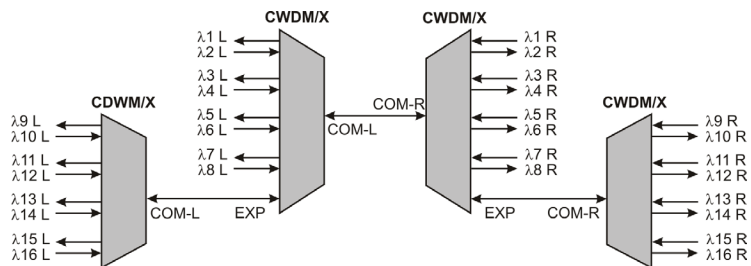


Figure 4: Two Cascaded 4-Channel MUX/DEMUX Modules

Installation

1. Carefully slide the module into an open slot in an *iConverter* chassis. Align the module with the installation guides and ensure that the module is firmly seated against the backplane. Secure the module by fastening the front panel thumbscrew (push in and turn clockwise to tighten) to the chassis front. The CWDM/X module requires no external power, however, if management is required, the module must be installed in an *iConverter* powered chassis with a Network Management Module (NMM2 model 8000N-1).
2. Connect a single-mode, dual fiber duplex LC cable between the Channel Port of the CWDM/X module and the attached device. It is important to ensure that the wavelength on each fiber strand of the CWDM/X matches the wavelengths of the attached device. Connect all Channel Ports in this manner. Ensure that the transmit (Tx) is attached to the receive side of the device at the other end, and the receive (Rx) is attached to the transmit side.
3. Connect a single-mode, single-fiber simplex LC cable between the Common Ports on the CWDM/X modules (this connection may be made through fiber patch panels since the modules may not be co-located). Ensure that the COM-L port at one end connects to the COM-R port at the other end.
4. When cascading two 4-Channel CWDM/X modules or a 4-Channel and a 2-Channel, connect a single-mode single-fiber simplex LC cable between the Common Port on one CWDM/X module and the Expansion Port on the other CWDM/X module (see Figure 4). Ensure that the wavelengths of the Channel Ports on the CWDM/X modules are unique.

NOTE: The *iConverter* CWDM/X modules can not be installed in slots 4, 8, 12 and 16 of a 19-Module Chassis or in the top slot of a 2-Module Chassis or in a 1-Module Redundant Power Chassis.

Design Considerations

iConverter CWDM/X modules are passive devices that require no external power. Attenuation (signal loss) of less than 2.7dB will be realized through each port on the module (see the CWDM/X Data Sheet for exact attenuation specifications for each model). Detailed calculations should be performed for each fiber optic link in the network to ensure the proper optical devices are specified with sufficient transmitter power.

When calculating optical loss, ensure that the total attenuation, plus a safety factor (typically 3dB), does not exceed the optical power budget. The optical power budget is the difference between the transmitter optical output power and the receiver's optical sensitivity. The transmitter optical output power and receiver optical sensitivity values can be obtained from the manufacturers of the respective equipment.

For more information, access Omnitron's documentation download web page to view all relevant documents:

<http://www.omnitron-systems.com/downloads.php>